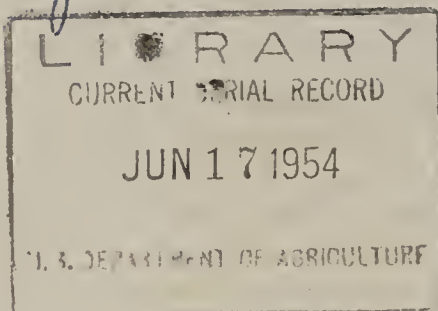


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UNITED STATES DEPARTMENT OF AGRICULTURE
Rural Electrification Administration
Telephone Engineering Division



May 1, 1954
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Telephone Engineering Newsletter

Newsletters are intended to provide a means for answering questions that arise in the field. They are not intended to be instructions nor to replace in any respect the presently approved channels for establishing requirements and procedures. Suggestions for subjects will be gladly received.

Revision of Telephone Systems Construction Contract

This contract, Form DS-T-10R1, dated July 1952 is now undergoing revision and the proposed changes will be ready for discussion at the Annual Field Conferences in June. However, copies of the revised contract will not be ready for distribution at that time. Numerous suggestions have been received for consideration in the revision, but there may be persons who have ideas not yet submitted. If these are sent in promptly, it will be possible to consider them at this time.

Additional Consultants in REA Telephone Program

Mr. A. G. Chapman is now a consultant on crosstalk and transposition problems and Mr. E. J. Guengerich is consultant on telephone traffic engineering.

Subscriber Line Carrier Trial in the South

Three channels of Budelman carrier equipment are on trial at Florala, Alabama, two of which extend south into Florida and one west into Alabama. These are in an area adversely affected by humidity and lightning. They were installed in February and have withstood some bad lightning without affecting the equipment. They are on line and cable which have higher losses than normally would be used, but their operation are reported to be satisfactory by the manager of the Florala Telephone Company.

Meeting of Carrier Suppliers' Representatives at REA

Representatives of nearly all carrier equipment manufacturers met at REA with Telephone Engineering Division engineers during the week beginning April 12 to discuss all aspects of coordination problems in using carrier equipment of various manufacturers. As a result of the meeting, a better understanding of factors involved and methods of solution were developed.

Vibration Dampers on Line Wires

The adoption of vibration dampers is under study for use in the REA telephone program as a means for minimizing line wire abrasion at insulators. These dampers have shown ability to reduce the amplitude of vibration from wind

to less than one percent of what it is without them. One type of damper is an 18 inch polyethylene tube, with one quarter inch inside diameter and three eights inch outside diameter, slit spirally for entwining around the line wire. It is free to slip along the wire to whatever place in the span as determined by vibration and wind. Wire manufacturers are working with REA to see if dampers can be used on a general basis with a simpler tie than presently specified.

Self-supporting Cable

REA has underway a plan for using self-supporting plastic-sheathed, plastic-insulated cable as a means for reducing plant costs. Hardware suitable for use with 16 and 26 pair cable has been developed and is available. One manufacturer has produced 16 and 26 pair of such self-supporting cable with 19 gauge medium hard drawn copper conductors. Another has produced similar 16 and 26 pair cables using 19 gauge Copperweld conductors which are equivalent to 22 gauge copper in conductivity. Self-supporting cable requires conductors of this gauge to give the needed strength. This type of cable is believed to be capable of use in spans up to 250 feet, if the conductors are copper, and 350 feet if Copperweld. Two trial locations are desired in each of the three loading areas. Each trial should extend more than one mile but not more than two miles. Anyone having an REA project where they could use this type of construction should send in the requirements and layout for consideration as a trial point. If trouble with self-supporting features develops, the manufacturer will supply free, the messenger and lashing wire to make it the same as regular cable.

Plastic Sheathed, Plastic Insulated Cable Splices

A method for making a watertight splice between two cables sheathed with the same plastic material has been developed in a laboratory and was given a field trial in Mississippi during the week of April 19 and the results were very promising. This is called a "welded" splice because it uses a plastic sleeve of the same material as the sheaths, welded to the sheaths at the sleeve ends by means of a hot air blower. The sheath ends are first built up by wrapping strips of sheath material around them, over which the sleeve is placed, and then the interstices between the sheath, the built-up layers, and the sleeve are filled by melting a rod of the same plastic material and pressing this into the interstices while the materials are heated to a soft and pliable consistency. The method is applicable to either polyethylene or polyvinyl chloride sheaths.

Location Desired for Trial of Two Channel Microwave Radio

REA desires a location where a two channel 6000 mc radio system can be given a field trial. It can be used either as two circuits for rural party line service or for two trunk circuits between dial central offices using E and M type signaling. A suitable location is one where line of sight between terminal antennas will clear all intervening obstacles by about 50 feet. Any REA telephone project having such a location can submit a request for a trial with information indicating that the line of sight requirement can be met.